

THE MYSORE GAZETTE.

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PART IV.

Official Papers.

From J. C. Douglas, Esq., To the Secretary to the Government of India, dated 9th January 1885.

I have the honor to report, for your information and for record, the results of my apicultural observations during the past year.

2. I commenced the year with two stocks of the variety of *Apis indica* indigenous to Lower Bengal; one of these was a swarm I captured near my office at Alipore. As the weather became warm, these bees built comb and they worked out artificial comb foundation, specially made for them from an engraved plate; from the rapidity with which they worked at the commencement of the season, I anticipated they would prove of value. Before, however, they had half filled their hives, they prepared to swarm, bred drones and queens, and I divided the two stocks into four. These did well, but I got absolutely no surplus honey. I took a few ounces, but I had to feed much more.

3. This variety of *Apis indica* is kept by villagers; they do not cultivate it at all, but merely encourage the bee by inserting earthen vessels in the house-walls, and they take the honey by taking all the combs, so that the stock perishes. I have received many estimates of the quantity of honey obtained, but they differ widely and are quite unreliable. Having taken many stocks and purchased others, and having kept the bee during two seasons, I am of opinion that it is commercially valueless. Possibly 5 or 6 pounds of honey might, under exceptional circumstances, be obtained by sacrificing the bees, but this is obviously insufficient to repay cultivation. This estimate is confirmed by an account of the cultivation of *A. indica* in Ceylon,—Journal, Ceylon Branch, Royal Asiatic Society, Volume VII, Part I, No. 23. Of the stocks I had I gave one to a station master on the East India Railway and one to a native gentleman: both these are in hives. Mr. Stocks, of Berhampore, has a stock, from which he recently took half a pound of honey with an extractor. Mr. Stocks being favorably situated and having the appliances will further test the value of this bee under the most favorable circumstances. This bee is not so easily handled as good-tempered Italians, but is as easily managed as the European Black bee, and is better tempered than the cross between the Black and Italian.

4. This bee is valueless, because—(1) its stocks are too light in comb and bees; (2) it swarms too frequently, so that without trouble and much attention only very small hives can be filled; (3) the surplus honey is very small in quantity; (4) the bees do not defend their hive against moth and other vermin, so they readily succumb to the moth, particularly during the rains.

5. Another variety found in Bhutan, building $5\frac{1}{2}$ cells to the inch, appears far superior to the variety found in Lower Bengal. Captain R. Fulton, B. S. C., stationed at Buxa, has kept this variety. He gave me two stocks, one of which was very weak and failed; the other I have under observation. Captain R. Fulton also gave a stock to a gentleman at Barrackpore. This variety is larger and builds larger cells than the varieties found in the plains, Chumba, and cultivated about Mussooree and elsewhere. I am informed its stocks are sufficiently heavy, but I have no data from which to judge of its commercial value; on this point I shall be able to give an opinion probably by the end of June next. This variety or species is, I believe, undescribed; the stock I have is exceedingly mild in disposition, the workers go out very early, and they readily use the comb of the Italian bees slightly contracting the cell by their outer edge, but they have the failing of not keeping their hive clear of vermin, particularly

moth, which they suffer to live unmolested apparently on the floor-board of their hive. Should this variety prove of value, stocks can be readily obtained, but I am decidedly of opinion this variety is very inferior in value to the Italian bee, even though it may prove sufficiently valuable to warrant its cultivation.

6. The variety found cultivated at Bushahr by Mr. Minniken appears to me equal to the European hive bees in productiveness; it is closely allied to the European species, and appears somewhat larger in size; whether it can be readily handled, whether it defends itself against moth and other vermin, and whether or not it swarms to such an extent as to reduce its value, can only be ascertained by observation. This variety or species is, I believe, undescribed. I am of opinion measures should be taken as early as practicable to ascertain the economic value under cultivation of this species. I have written to Mr. Minniken on the subject, and I now send two boxes with instructions for packing two stocks of these bees, which I should like to receive as early as practicable to admit of their being observed during the coming season, provided you are pleased to obtain them for me.

7. As to the possibility of cultivating the Italian bee, I am now quite convinced it can most certainly be cultivated here. I brought out five queens, of which I saved two, and in 1883 these two filled their hives, although they had at first but a few hundred bees; I had nursed these into strong stocks, when one of the queens died; I had no drones, and the rains prevented drone breeding. I had therefore only one stock left. I wrote for four queens, and these were sent by Sir G. Birdwood, but only two arrived alive; one of these became diseased, and I had to destroy her. I again sent for four stocks direct from Milan; of these I saved two queens, which are doing well. I bred a queen, the first bred in India; this queen is doing very well; her stock is very vigorous. I was obliged to remove it from the apiary as it attacked another stock, and robbed it of all its stores. I have now five queens with bees; the stocks are still weak, but I have no doubt whatever I shall be able to distribute during the coming season queens and bees to perhaps a dozen persons who are prepared to receive them. One of the queens was born in 1882; she is now $2\frac{1}{2}$ years old at least, and has been in India more than two years; she has furnished bees and brood for all the other queens and to keep up diseased stocks, and last year I took 15 lbs. of excellent honey from her stock, which as it was kept in Park Street, Calcutta, had very little opportunity of furnishing a rich harvest. I found the bees did exceedingly well; they kept their hives clear of wax, moth and other vermin. I found two deaths—head moths in one hive, evidently destroyed by the bees. I find the bees can get pollen all the year round; it was feared they might not get anything in December and January, but they get almost too much pollen during those months; they are getting honey now.

8. The largest yield per stock I have had reported for *Apis indica* is 30 lbs. of honey; this is reported by Mr. Seymour of Mussooree. This gentleman has kept bees for several years in Australia, and his testimony is therefore of considerable value. He thinks bee-keeping with *Apis indica* as found about Mussooree very inferior economically to the culture of *A. mellifica* in Australia. Setting aside such figures as 500 and 600 lbs. per stock, in America G. M. Doo-little, an apiarist of great experience, considers 50 lbs. of comb honey or 75 lbs. of extracted honey an average crop per stock. Thirty-one Canadian bee-keepers had 1,484 stocks in the spring of 1884; increased to 2,569 stocks during the year; they took 37,250 lbs. of comb honey and 59,845 lbs. of extracted honey. I think one pound of comb honey equal to quite $1\frac{1}{2}$ lbs. of extracted, and so estimated, the yield as above was equal to an average of 80 lbs. of extracted honey and an increase of 90 per cent in stocks of bees. The crop of the year was considered scarcely up to the average. The severe and long American and European winters render apiculture more precarious than in the plains of India, or even in the hills. The great superiority of *A. mellifica* over *A. indica* and the importance of acclimatizing the former is apparent; the Bushahr bee might prove as productive as, or more so than, *A. mellifica*.

9. I could have distributed stocks last year had I wished, the one queen would have supplied bees, queens, and drones, but I preferred to import other queens rather than breed in and in. The journey from Europe is very injurious to the queens; even those which appear to arrive in good health are commonly found ultimately to have suffered in their laying powers, or to have become diseased. Knowledge of this fact induced me to import a number of queens in the hope of saving a few, and the ignoring of this has caused the failure of all previous attempts to introduce the European bee into India.

10. During the year I have issued a number of hives and other appliances to persons anxious to take up apiculture in different parts of India; these persons are practising and learning on *Apis indica*. The issue of Italian bees during the coming season will, I have no doubt, confirm these persons in their resolves, and spread the practice to many others. The Italian bees will be issued to bee-keepers in British Burma, Assam, Orissa, Bengal Proper, Mussooree and Dehra, Bhutan, and elsewhere.

11. As to the natural history of Indian bees of the genus *Apis* very little is known; several varieties of *A. indica* and *A. dorsata*, and *A. florea* have been described, but there is much confusion in naming them; in most cases the descriptions are incomplete, not including the descriptions of drone, queen, and comb; the life history has not been studied, and some Indian honey bees have not been described at all, being quite unknown to European naturalists. In 1862, Dr. Gerstalker of Berlin discussed the classification of Indian honey bees in a paper read to the "Wander-Versammlung Dentscher Bienenwirthe," and he pointed out the confusion that existed in nomenclature and excellent grounds for a classification so far as the available knowledge admitted. Since the decease of the late Mr. F. Smith, I am informed there is no member of the British Museum staff specially qualified by knowledge of this genus of insects.

12. In my little Handbook of Bee-keeping for India I described a typical *A. indica* and omitted all mention of the varieties and their synonymous names. I am about to carefully examine the collection I have, and I hope to obtain other specimens. Specimens, particularly if including the drone, queen, and a small piece of comb, would be of great service. I have no doubt, whatever, I shall be able to add considerably to the existing knowledge of Indian honey bees and their life history, as well as discover some of economic value; in both the Bhutan and Bushahr bees it appears probable insects of economic value have already been discovered; it remains to decide by observation how these compare severally with the Italian bee now rendered available.

13. As I am about to examine, compare, measure, and describe all the Indian honey bees of which I can obtain specimens, and also to endeavour to discover their affinities and the bearings of these on the origin of the European hive bee, which probably originated in Asia, and as I may not only be able to indicate the best variety and best mode of cultivating it for the benefit of the natives of India, but I may also obtain information of economic and scientific importance to European and American apiculture, I beg that any spare specimens of the number collected by Dr. G. Bidie may be sent to me.

Instructions for transferring and packing Bees in portable Hive.

SMOKE the bees slightly, spray them with thin syrup unless they have honey accessible in their combs; then with smoke, by shaking and brushing the bees from the combs remove the combs one at a time. Fit the combs into the frames against the top bar, cutting the top of the comb straight, if necessary, and filling up the frames with pieces of comb, if available. The wirefixers are for holding the comb in the frames while tying it in. Tie the comb in the frames by stout twine at every two inches vertically and horizontally. Very white new combs should be rejected, very thick heavy combs containing much honey and sealed may be pared with a knife to one inch. The brood combs, if any, should be placed in the centre frames. If there be much honey in the combs, other food may not be necessary, but full combs travel badly and food may be given by mixing honey and crushed white sugar to a stiff paste and filling the food-box with it. The water bottle should be filled and so corked that the water does not come out unless the bottle be shaken.

2. The combs having been transferred shake or brush the remaining bees into the box, close carefully with cloth or by other means the ventilators of the box, cover the top and open the door; place the portable hive in the place of the old hive. The portable hive with its entrance, as far as practicable, with some place as the entrance of the old hive should be left till evening; after dark, when the bees are all in, the door should be closed, the ventilators opened, and the box despatched.

3. If the weather be very cold, the side ventilators may be partly covered, but otherwise they should be left quite uncovered. One brood comb at least should be inserted, if possible, even if from another stock, as the presence of brood prevents absconding.

4. If detained on the road, the bees may be allowed to fly, the door being opened, and closed again after dark. *Whenever the door is opened, the side ventilators must be completely closed.*

Unless the boxes are to be closed longer than a week, it would not be desirable to open the hive boxes *en route* and then only if some one is present who could hive the bees if they swarmed out.

5. It will be found convenient in transferring to remove all the frames from the box and put the lid on; as each comb is cut out of the old hive, brush the bees from it into the box and put on the cover; if the principal cluster be gently lifted and shaken into the box, there will be no fear of the queen having been left behind.

See also "Driving" and "Transferring" in the Handbook of Bee-keeping for India.

6. The boxes contain a veil, smoker spray diffuser, and one dozen comb fixers; the articles should be retained excepting the latter, which may, if necessary, be left in the comb, but should, if practicable, be removed.

J. C. DOUGLAS.

Abstract of Season or Intermediate Reports for the Week ending 11th April 1885.

Bangalore District.—Twenty-one cents of rain were gauged in the Civil and Military Station and 25 cents in the Town of Bangalore. In some taluks, a few tanks have received a moderate supply of water. Recent showers have helped to replenish small ponds. Prospects of season will improve with a few more showers. Standing sugar-cane and paddy crops withering for want of water; but slightly improved in parts. Sugar-cane has been sown in parts and lands ploughed wherever sufficient rain fell. Public health generally good. Drinking water and pasturage very scarce. Cattle in poor condition and murrain prevalent in parts. Prices: rice, second sort, 9½ seers, ragi 26½ seers and horse-gram 22 seers per rupee.

Kolar District.—Forty-five cents of rain at Kolar. Rain also fell at Chikballapur, Bagepalli, Devanahalli and Sidlaghatta. Crops are withering in some places. Scarcity of drinking water is experienced in a few villages. Prospects of season uncertain. Public health indifferent. Cholera abating. Small-pox and fever prevail in parts. Cattle look poor. Water and fodder scarce. Prices: second sort rice, 9½ to 12½ seers and ragi 22 to 32 seers per rupee.

Tumkur District.—Fifteen cents of rain fell at Tumkur. Slight showers fell in several Taluks. Standing crops in fair condition in 8 Taluks. In others they are drying or in an indifferent condition from want of water. Bengal-gram, javari, wheat, paddy, cotton and sugar-cane were harvested in some places. Prospects of season depend on timely fall of rain. Fever and small-pox in parts. Cattle suffer from disease in several Taluks. Water-supply and pasturage indifferent in several places. Prices: rice, 9 to 12 seers, ragi 28 to 36 seers and horse-gram 20 to 25 seers per rupee.

Mysore District.—Light rain fell in 7 Taluks. Jola, sugar-cane and yellu were sown, but some of them are in a backward condition for want of water. Harvesting of paddy, sugar-cane and yellu continues in some places. Prospects of season dependent on timely fall of rain. Public health generally good. Cholera in Mysore and Nanjangud. Cattle are in a reduced condition owing to a deficient supply of fodder and water. Murrain in two Taluks. Pasturage generally scanty and water-supply insufficient. Prices: rice 10 to 12 seers, ragi 24 to 28 seers and horse-gram 18 to 25 seers per rupee.

Shimoga District.—Ninety-eight cents of rain at Shimoga. Standing crops in good condition, except in the Channagiri Taluk where the sugar-cane crop is fading from want of water. Cotton is being gathered in the Davangere Taluk and pepper in Tirthahalli. Kar paddy is being harvested in Channagiri. Ploughing operations have commenced in the Shimoga Taluk. Prospects of season good. Public health fair, but fever, bowel complaints and small-pox prevalent in parts. Cholera still prevalent in the Hennali Taluk. Cattle generally healthy. Prices: rice 13 to 17 seers, ragi 20 to 35 seers and jola 26 to 28 seers per rupee.

Kadur District.—Twenty cents of rain at Chikmagalur. Standing crops in good condition. Paddy and sugar-cane were harvested. Cotton and arecanut were gathered. Prospects of season fair. Fever and small-pox in the Manjarabad and Mudgere Taluks respectively. One case of cholera (not fatal) occurred in the Koppa Taluk. Cattle healthy. Water-supply and pasturage good in the Malnad and fair in the Maidan. Prices: rice 13 to 20 seers and ragi 20 to 40 seers per rupee.

By Order,

C. RAGHAVACHARLU,
Offg. Under-Secretary.